Data Analysis & Design Workshops

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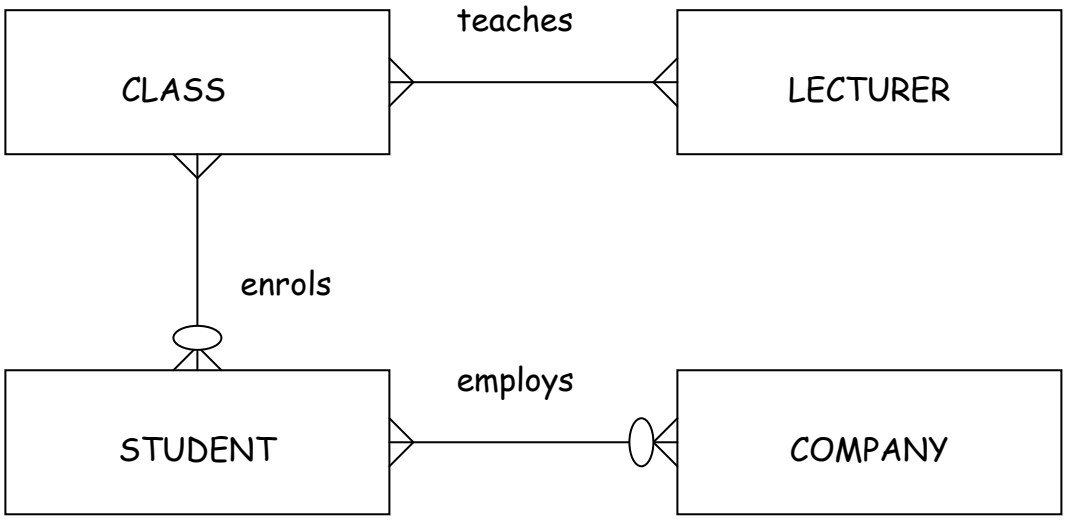
ISS Short Course Booking System

All data required to develop an ISS Course Booking Information System (ICBIS) have been collected. We have identified four entities and the ERD is as shown below. The some results of the analysis of the data elements required are attached.



Entity-Relationship Diagram – ISS Course Booking System

Entity	Defintion
CLASS	A run of a particular course.
LECTURER	An ISS staff, employed to conduct ISS courses
STUDENT	An individual attending a class at ISS. He may be sent by his employer to attend the class or he attends the class at his own expense
COMPANY	Company that sends employees to attend ISS class(es)

Entity	Attribute	Description
CLASS	course name	every course has a unique name, example C# PROGRAMMING
	course description	Cobal pro C# programming for developer
	number of days	the number of day for a particular course is fixed,
	fee	fee per student, varies for different courses
	start date	each course can have many runs in a year, there will not be more than a run of a particular course at any one time
	end date	the end date of the course a course is usually one to five days the course is always completed within a week
	course type	programming, life cycle, project management, networking, etc, each course is classified under one type
	number of students	number of student per run of the course, minimum size is 8 and maximum size is 20 for each run of all courses
	student name	student name
	student i/c	i/c number of student
	student attendance percent	attendant rates in percent
	student's company name	company name of students, some students change job, so the company name may not the be same as the last time he/she attend a ISS course
	lecturers' names	each course may have more than 1 lecturer, (example: day 1 is taught by lecturer A and day2 & 3 taught by lecturer B) each run of a course can be taught by a different groups of lecturers on a particular day of the course there will be not more than 1 lecture teaching
	room number	the room number where a run of a course is held for its entire 1-5 days duration courses do not have fixed classroom, a room can only have a run of a course at any one time

Entity	Attribute	Description
	room type	with computer or no computer
STUDENT	name	name of student
	course name	course attended or attending
	course start date	date the course starts
	company name	company that sponsors the student when he attends that run of course (course name and course start date) some students are self sponsored, so the company name will be blank
	I/C number	i/c number of student
	job title	job title of student at the time he is attending the course
	email	student email id
	phone	student contact phone number
	address	student address
LECTURER	name	name of lecturer
	staff ID	staff ID
	Course can teach	the courses that a lecturer can teach (lecturer will only be assigned to course he can can teach) a lecturer must be able to teach at least one course
	leave start date	Lecturer can take many leaves in a year.
	leave end date	
COMPANY	Name	name of company, company name is unique
	Contact Person name	name of person to contact
	Address	address of company
	Email	company email
	Phone	phone number
	Fax	fax number
	Type	each company is classified into one the 7 types (infocomm, educational, manufacturer, retail, banking, utilities,others)

Workshop Requirements

Workshop 1

Complete the Data Analysis for the above ISS Course Booking Information System. In this workshop you should produce a data dictionary that describes the followings

1) format and size of each data attribute
2) definitions and business rules (as much as you could identify)
3) entity identifiers

(refer to Appendix A for the attribute names identified)

Workshop 2

Normalization exercise.

2A)

1) carry out 1st,

2B)

2) continue from 1st Normalization, carry out 2nd Normalization
3) carry out optimisation along the way

2C)

4) continue from 2nd Normalization, carry out 3rd Normalization
5) carry out optimisation along the way
6) remove derivable attribute (if any)

Workshop 3

Prepare a logical data model in the normalized form.

Appendix A

Entity	Attribute	Attribute Name
CLASS	course name	COURSE-M
	course description	COURSE-DESC
	number of days	COURSE-DAY-N
	fee	COURSE-FEE-A
	start date	CLASS-START-D
	end date	CLASS-END-D
	course type	COURSE-TYPE-T
	number of students	CLASS-SIZE-N
	student name	STUDENT-M
	student i/c	STUDENT-IC-N
	student attendance percent	STUDENT-CLASS-ATTENDANCE-P
	student's company name	STUDENT-COMPANY-M
	lecturer's name	LECTURER-M
	room number	CLASS-ROOM-N
	room type	ROOM-TYPE-T
STUDENT	name	STUDENT-M
	course name	COURSE-M
	course start date	CLASS-START-D
	company name	STUDENT-COMPANY-M
	I/C number	STUDENT-IC-N
	job title	STUDENT-JOB-TITLE-X
	email	STUDENT-EMAIL-T
	phone	STUDENT-PHONE-N
	Address	STUDENT-ADDRESS-T
LECTURER	name	LECTURER-M
	staff ID	LECTURER-STAFF-ID-N
	Course can teach	LECTURER-CAN-TEACH-COURSE-M
	leave start date	LECTURER-LEAVE-START-D
	leave end date	LECTURER-LEAVE-END-D
COMPANY	Name	COMPANY-M
	Contact Person name	COMPANY-CONTACT-PERSON-M
	Address	COMPANY-ADDRESS-T
	Email	COMPANY-EMAIL-T
	Phone	COMPANY-PHONE-N
	Fax	COMPANY-FAX-T
	Type	COMPANY-TYPE

M: Name, D: Date, T: Text, N: Number, A: Amount, P: Percent